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A. Leonard Fuller.

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Frederick 90

1758

AN ESSAY ON THE EXTERNAL USE OF WATER.

IN A

LETTER to Dr. ****

WITH

PARTICULAR REMARKS upon the preſent Method of uſing the Mineral Waters at BATH in SOMERSETSHIRE, and a Plan for rendering them more ſafe, agreeable, and efficacious.

By T. SMOLLETT, M. D.

Δεῖ δὲ καὶ τῶν ὑδάτων ενθυμέεσθαι τας δυνάμιας.

ΙΠΠΟΚ. ΠΕΡΙ ΥΔΑΤ.

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To Dr. * * *

SIR,

SINCE our laſt converſation, I have been endeavouring to collect and digeſt my thoughts, touching the external uſe of Mineral Waters, as comprehended in the three ſeveral articles of *Pumping*, *Bathing*, and *Fomentation*; but in the courſe of my reflections, I find the ſubject cannot be properly diſcuſſed within the limits of a ſmall occaſional Pamphlet; and, with regard to a compleat ſyſtem, I have neither time nor opportunity to confirm by experiments, the particular notions I entertain concerning the efficacy of thoſe Waters: Nevertheleſs, I ſhall, in compliance with your requeſt, commit to the Public, theſe opinions, ſingular as they are, with the reaſons on which they are built, in hope that they will prove ſerviceable hints to thoſe who are better qualified than myſelf, for proſecuting uſeful inquiries in the medical world. True it is the *Thermæ* and *Acidulæ*, or hot and cold Mineral Springs, have been inveſtigated by ſo many different pens, and produced ſuch a variety of opinions among phyſicians and chemiſts, that there is very little encouragement for any man to commence author on the ſame

branch of natural knowledge, becauſe he muſt run a very great riſque of ſeeing his ſentiments neglected among the number of thoſe vague *Hypotheſes* which are looked upon as the children of idle imagination.

One writer denies that the Water in the generality of Hot Wells, is impregnated with *Sulphur*; while another affirms, that, without *Sulphur*, no ſuch natural Hot Waters can exiſt. Yet, both theſe authors quote experiments to vouch for the truth of their different aſſeverations; one aſſerting, that although he had immerſed ſilver in many of the moſt noted *Thermæ* on the continent of *Europe*, he could not perceive the colour of the metal changed; neither could he procure any real brimſtone by evaporating the Water; nor would the reſidue, when mixed with Salt of *Tartar*, produce the *Hepar Sulphuris*. But, in oppoſition to this Doctrine, there are ſo many concurring obſervations, that it is amazing to ſee it maintained by an author of *Hoffman*'s reputation; for, beſides the Hot Baths of *Auſtria* and *Hungary*, deſcribed in the Philoſophical Tranſactions, and the Spaw at *Harrigate*, in which Dr. *Shaw* found actual brimſtone floating in flakes; *Hoffman* himſelf owns that the Waters at *Aix la Chapelle*, which are better known than any other in *Europe*, abound with this Mineral in ſuch quantities, that whole pounds of the flowers of *Sulphur* are found ſticking to the ſtones that line the fountain-head of the Springs.

Nor are the opinions of chemiſts leſs contradictory in their *Analyſations* of cold *chalybeate* Waters. Some of that claſs

claſs ſay, they contain an *Acid*, whence their Name *Acidulæ*; while others (and among the reſt, *Hoffman,*) deny the *Acid:* Nay, he pretends to have found a manifeſt *alkaline Salt*, and upon this Proof, erects a theory of their operation on the human viſcera, when drank in large quantities: but this *Alkali* is, by Dr. *Short* explained into a ſediment of *calcareous Earth*, and a portion of common ſalt. *Hoffman* likewiſe denies the exiſtence of fixed or real *Vitriol* in theſe Waters, though he allows they are impregnated with a *vitriolic Acid*; but *Short* juſtly blames him for making ſuch a diſtinction without a real difference; and Dr. *Shaw* hints a method for obtaining from them a ſolid *Vitriol.*

Such diverſity of opinions, among thoſe who have laid themſelves out for *analyſing* Mineral Waters, cannot fail to perplex and embarraſs people who attempt to reaſon upon the uſe of them, without having had the advantage of ſeeing their effects, in a long courſe of practice, by which alone their Medicinal Virtues are to be aſcertained.

For my own part, without having recourſe to the aſſiſtance of a *Spiritus Rector*, an *Acidum vagum*, or ſubtile *elaſtic Spirit*, univerſal cauſe and fountain of all particular *Spirits*, whether in the mineral, vegetable or animal world ---I ſay, without the interpoſition of any ſuch unintelligible influence, I can eaſily conceive how extraordinary cures may be performed by the mechanical effects of ſimple *Water* upon the human Body; and I

 fully

fully believe that in the uſe of *bathing* and *pumping*, *that* Efficacy is often aſcribed to the *mineral Particles*, which properly belongs to the *Element* itſelf, excluſive of any foreign aſſiſtance.---*Hoffman* indeed, acknowledges that the energy of mineral waters, both in preventing and curing Diſeaſes, is in a great meaſure, owing to the Water itſelf; though he alledges the other principles ſerve to ſtimulate and quicken its operation.

Pure Water is certainly of all others, the moſt ſalutary beverage, as being the beſt fitted to mix with all the animal juices, aſſiſt the different ſecretions of the human body, and prevent that Rigidity and *Coaleſcence* of the veſſels, which are the immediate cauſes of old age; and while it thus acts as an univerſal *Deobſtruent*, by diluting the Fluids; inſtead of *abrading*, or offending the ſolids, it clears them from all *extraneous* adheſions, and manifeſtly contributes to the preſervation of their due tone and flexibility. Theſe admirable qualities inherent in ſimple Water, are clearly evinced by the uninterrupted health, good ſpirits, and *Longævity* of thoſe who uſe nothing elſe for their ordinary drink; and many inſtances might be given of acute and ardent Fevers cured by plentiful draughts of warm water; as well as of *chronical* Diſtempers that have yielded to a regular courſe of drinking cold, Spring-water at the Fountain-head. But, ſuch an enquiry does not fall within my deſign, which was that of conſidering the Fluid in its external application.

I have known the moſt ſordid and inveterate *ſcrophulous* and *ſcorbutic* ulcers cured by the *aſperſion* of common Well-water, which to the taſte and ſmell, exhibited no ſigns of mineral impregnation; but, at firſt, derived its reputation from the ſuperſtition of the people, by whom, in times of ignorance, it had been dedicated to one of the legendary ſaints of the Roman kalendar. Such cures are undoubtedly performed by the coldneſs, preſſure, and moiſture of thoſe waters: the firſt communicates a ſpring to the decayed or diſeaſed ſolids, by which the veſſels are enabled to propel their contents, and renew the circulation, which had been impeded; the preſſure ſupports the weakened ſides of the capillaries or fine lymphatics againſt the increaſed momentum of the juices thus again ſet in motion, helping, at the ſame time, to reſtrain the *fungous* excreſcences, in determining that præternatural *Incrementum* in a lateral direction, by which a re-union of the fibres is effected; and the moiſture deterges the ulcer, by waſhing away the *acrid* matter, which would otherwiſe *corrode* the parts, and conſequently obſtruct the cure.

Surgeons in general, are, in my opinion, too neglectful in making due compreſſion, in ſores over-run with *Fungus*, or circumſcribed with *Callus*. In theſe caſes, the tone of the ſolids is always debilitated or loſt; and when the excreſcences regerminated (as it were) under the knife, and ſprung up, in ſpite of all the *Catheretics* and even *Cauſtics* that could be uſed, I have known them ſubdued by moderate compreſſion, and a kindly digeſtion obtained.

ed. In all wounds alſo, that happen in parts of a looſe or membranous texture, and are become *fiſtulous*, from the nature of their ſituation, ſuch as thoſe in the *Urethra*, or in the cheek, when the ſalival duct is divided, it will be almoſt impoſſible to effect the cure, without a particular attention to this circumſtance of preſſure, which, if properly conducted, will ſeldom or never fail.

The efficacy of the *Cold Bath*, tho' unimpregnated with mineral principles, is ſo well known in *hypochondriac* Diſorders, in diſeaſes of the lax fibre, and partial weakneſſes, when the *Viſcera* are not unſound, that there is ſcarce a Phyſician, Surgeon, or Apothecary, who has not opportunities of ſeeing it every day. Thoſe, therefore, who want further information on this head, I refer to the writings of *Floyer* and *Baynard*; together with a very ingenious eſſay written in Italian by *Antonio Cocchi*, and printed at *Rome* in the year 1738, in a collection intituled *Saggi di Diſſertazioni accademiche, pubblicamente lette nella nobile accademia Etruſca dell' antichiſſima Città di Cortona*. Tomo II.

The author of this diſſertation, which is the tenth as it ſtands in the volume, juſtifies the external uſe of cold Water, from the practice of the Antients; and, in the courſe of his diſquiſitions, forms a very plauſible conjecture, touching the diſtemper of *Auguſtus*, which was cured by the celebrated *Antonius Muſa*. He refutes the opinion of thoſe who ſuppoſed the Emperor's diſeaſe was

a gout, by miſtaking the word *Arteria* for *Articulare*; and brings very good reaſons for believing that it was a *Tabes pituitaria*, ſeated in the glands of the Palate, Fauces, and *Aſperia Arteria*: Accordingly, *Muſa* preſcribed cool gargles, and ordered cold Water to be thrown upon his body. But I ſhall now proceed to conſider the effects of ſimple Water, in the article of Pumping; a method of application, in which it will undoubtedly act with great and ſurpriſing energy, upon the nerves and fibres of the human body.

The learned and judicious Commentator upon *Boerhaave*'s Aphoriſms, ſays, he has ſometimes cured chronical Tumours about the knee, that reſiſted almoſt every other remedy, by letting warm water fall from an high place, *guttatim*, or drop by drop, upon the part: if therefore warm Water deſcending with ſuch an inconſiderable *Momentum*, and in ſo ſmall a Volume, will prove efficacious in removing one of the moſt unyielding of all Tumours; what may not be expected from the deſcent of a full Stream that covers at once, the part affected? It may be ſuppoſed, indeed, that a ſucceſſion of ſingle Drops falling upon different parts of the Tumour, may produce a gentle undulation in the diſeaſed veſſels, by which the obſtructed Matter is *comminuted*, put in motion and expelled; whereas, a large ſheet of Water, that covers the whole ſurface of the diſeaſed part, preſſes equally on every point of it; ſo that the obſtructed matter cannot move to any one place of the Tumour,

mour, where there is leſs reſiſtance than in any other; but, if the Pump be of a moderate diameter, and the Stream properly managed and played upon the part, the reſiſtance may be varied to much better effect, than we can hope from ſuch a trifling diſtillation of one ſingle Drop ſucceeding another; and warm Water pumped upon any diſeaſed part, not only acts by preſſure, but has other effects in common with cold Water applied in the ſame manner, a practice which I will venture to recommend as a very powerful and ſalutary method of application.*

If a white ſwelling of the Joint, or contraction of the *Flexor Tendons* of the knee, be ſubjected to a temporary caſcade of cold Water, the part affected, inſtead of ſuſtaining a continued and equal preſſure, as would be the caſe, were it immerſed in the Bath, undergoes a ſucceſſion of impulſes from the falling ſtream, infinitely more delicate and effectual than any kind of dry *Friction*; for while the obſtructed and ſtagnating Fluids are (as it were) driven from the places of their confinement, by the re-

* *Hippocrates*, in his Chapter ΠΕΡΙ ΥΓΡΩΝ ΧΡΗΣΙΟΣ, expreſly ſays, That ſwellings in the joints, together with gouty pains in the feet, are extenuated and eaſed by a plentiful affuſion of cold Water. And the ſame method of practice was adopted by *Celſus*, who, in treating of arthritical pains, obſerves, That if they are attended with tumour and heat, refrigerants are proper; and therefore orders the parts affected to be plunged and even detained in the coldeſt Water, tho' not for any length of time; nor would he have this practiſed every day, leſt the tendons ſhould be contracted, and grow ſtiff. We are alſo informed by *Ætius*, that *Archigenes* recommended the ſame remedy, on the ſame occaſions.

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peated ſtrokes of the Water, the momentary interval betwixt every ſhock, gives more play to the elaſtic ſides of the ſmall veſſels, and creates an *oſcillatory* Motion, which helps to divide the preternatural *Moleculæ* of the impacted juices, thereby rendring them more fit for the purpoſes of minute circulation; at the ſame time, the ſudden daſh of a cold fluid, acts as a *Stimulus*, upon the relaxed or obſtructed Tubes which aſſiſt in the general *Niſus*, by a ſucceſſion of extraordinary contractions.

What paſſes within the obſtructed veſſel, when the ſtagnating fluid is propelled, hath been curiouſly deſcribed by *Leeuwenhoeck*, who, in the membranous expanſion that ſerves inſtead of a wing to a bat, obſerved, by the help of his glaſſes, the firſt tendency to *Reſolution* in the blood which had been totally congealed by cold: at firſt, he could perceive no motion either in the arteries or veins, until the animal reviving by degrees, he beheld an oblong maſs of concreted blood, which filled the whole cavity of the artery, begin to move backwards and forwards in the veſſel, which, by its ſucceſſive contractions, gradually diſſolved the *Coagulum*, ſo as to render the whole fit for circulation. Here, indeed, the obſtruction was thawed by the revival of natural heat, and the motion firſt began in the fluid; but, in Pumping, the *Reſolution* is immediately owing to the contraction of the veſſel, occaſioned by the effects of the Water upon the nervous ſyſtem. --- Perhaps, too, the imagination is concerned, being acted upon by a

certain timidity of expectation between every ſtroke of the falling fluid. --- That fancy operates with great power upon the human body, is ſo evident in all *hypochondriac* and *hyſteric* diſorders, that it would be idle and ſuperfluous to call in the evidence of facts in ſupport of a truth ſo well known.

Exceſs of paſſion hath often proved fatal both to men and women, and the common ſymptoms of fear indicate a total contraction of the animal machine: the blood is driven from the cheeks, and ſurface of the body, towards the head, heart, and other internal parts, whence palpitations, throbbings in the arteries of the brain, and a general conſtriction of the whole fibrile ſyſtem. --- *Van Swieten* relates the caſe of a woman in good health, who, from a ſudden fright, was ſeized with a tumour in one of her breaſts, which, in ſpite of the moſt ſkilful treatment, hardened into a confirmed *Schirrus:* it is a conſtant obſervation, that, when ſoldiers march to battle, there is among them a remarkable evacuation by ſtool; and I know an inſtance of a woman, who, being apprehended on a criminal accuſation, was ſo terrified when the officers of juſtice appeared, that her urine and *Fæces* were expelled with incredible force.

The cure of *Wens* by the application of the hand of a perſon who hath been hanged, can be accounted for no other way but from the coldneſs of the cadaver, the friction of

of the member, and the power of imagination. Neither is this to be reckoned among thoſe idle remedies that owe their credit to the ſuperſtitious fables of old women: I knew a young gentleman of good ſenſe, who had a large *ſtrumous* ſwelling upon one ſide of his neck, and ſubmitted it to this application, which, (he owned) had a remarkable effect upon his ſpirits, from that natural antipathy which almoſt every body has to the touch of a corpſe: for ſome days, his imagination dwelt upon the experiment with a kind of horror that ſeemed to thrill, in repeated vibrations, from the part, which began to put on a more inflammatory appearance, and, I make no doubt, would have been altogether diſſolved by frequent repetition of the ſame medicine, which, (however) he refuſed to undergo. ---

It was, doubtleſs, from ſuch effects of fancy, that our kings, of old, derived their power of healing *ſcrophulous* diſtempers by the touch; a poor diſeaſed wretch, of low ſtation, and weak intellects, prepoſſeſſed with the ſuperſtitious notion of a delegated power from Heaven, and ſtruck with the *Apparatus*, as well as with the ſublime rank of the *Operator*, acting in the double capacity of apoſtle and king, could not fail to be extremely affected through the whole ſyſtem of the nerves, and ſuffer ſuch agitations in the blood and ſpirits, as might work great changes in the conſtitution: yet theſe effects would vary according to the different diſpoſitions of different patients,

and their various ſituations in life. --- But to return from this digreſſion, *Pumping* is attended with another conſequence, which, in all probability, adds to its ſalutary effect: the Water, in its fall, is broke into very minute particles, by the reſiſtance of the air, as well as by its daſhing againſt the diſeaſed limb, and the ciſtern or pavement that receives it; ſo that the atmoſphere is loaded with a kind of miſt, which being kept in motion by the *Pumping*, may act by way of *Fomentation* upon the part affected. True it is, the coldneſs of the fluid ſeems to contradict this ſuppoſition, becauſe it is the known property of cold to contract the pores of the ſkin, conſequently, to refuſe admiſſion to thoſe floating corpuſcles: but Water, ſuſpended in ſeparate globules, has not that aggregate coldneſs which we find in a collected maſs; therefore we are not to ſuppoſe the *vaſa inhiantia* on the ſurface of the body altogether ſhut: and it is well known that the particles of cold Water are more penetrating, becauſe they are more contracted than thoſe of hot Water: *for fire with all its force, however applied and continued to Water, can never divide its component particles, or make them ſmaller; but, on the contrary, will enlarge their bulk, and ſtrongly agitate them, one among another; and Water rendered as cold as poſſible, may paſs through pores which it could not enter while hot.* --- At any rate ſuch an agitated miſt will produce an undulation in the air, which operating upon the ſurface of the body, will aſſiſt and promote a briſk circulation in the blood and animal juices. --- In the neighbourhood

bourhood of every *Cataract*, or *Caſcade*, whether natural, or artificial, there is, (if I may be allowed the expreſſion,) a cold, vapour Bath of this kind, which might be converted to uſeful purpoſes, could the agitated ſteam be collected in a proper receiver, without deſtroying its motion, and directed in full Stream to the part affected, whether *Ecchymoſis*, indolent Tumor, or contracted Tendon. --- We know from *Hydraulics*, that ſuch a ſteam is obtained, and might be eaſily and commodiouſly conveyed by a tube three hundred feet high, through which Water precipitated would be ſo broke and attenuated by the reſiſtance of the air, and the ſides of the pipe, as to iſſue at the lower end in form of a thick miſt: but this would not be the caſe, if the deſcent was leſs than three hundred feet; and therefore, the expedient is not likely to be tried.

Having thus ſignified my opinion touching the uſe of common Water in the *cold Bath*, and in *Pumping*; I ſhall now communicate my ſentiments of the *warm Bath*, and *hot Fomentation*, which, when properly uſed, are certainly very effectual remedies in many diſorders of the human frame, even when the Water is free from all mineral impregnation.

Warm Water is of all fluids the moſt mild and inoffenſive; inſomuch, that, when applied to parts of the moſt exquiſite feeling, it gives no pain; on the contrary, in ulcerated Cancers, when the nerves are corroded, laid bare,

bare, and ſmart with every other application, this alone mitigates the torture.

It is not my province to expatiate upon the virtues of this element when uſed internally; I ſhall, therefore, limit my obſervations to the outward uſe of it, in the different forms of *Pediluvium*, *Semicupium*, *univerſal Bath*, and *Fomentation*. Bathing the feet in warm Water, is known to be an efficacious remedy in the *Head-ach*, *Vertigo*, *convulſive Aſthma*, *dry Cough*, *hypochondriacal* and *hyſterical Diſorders*, *Palpitations of the Heart*, *Obſtructions of the Menſes*, and all caſes, where it is neceſſary to make a revulſion from the head, and to invite the juices downwards: nay even in *ardent inflammatory Fevers*, I have known it uſed to great advantage, for taking off the tenſion and rigidity of the skin, aſſuaging the extreme drought, and procuring ſleep to the reſtleſs patient: Yet this practice is condemned by a great many ingenious Phyſicians, who affirm, that the heat, by rarifying the blood increaſes the fever; and that the preſſure of the Water upon the extremities, being eight hundred times greater than that of Air, muſt of conſequence drive the contained fluids towards the head and heart with a moſt dangerous impetuoſity: but, the reſiſtance of the fluids is an over-match for this preſſure, great as it is; for it will be found that the feet, even while immerſed in the Bath, are conſiderably ſwelled beyond their natural dimenſions; and this muſt be entirely owing to a relaxation of the veſſels; or at leaſt, to their diſtenſion from

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an extraordinary *Impetus* of their contents.---After all, it is a queſtion with me, whether the vapour of the *Pediluvium*, may not contribute to its good effects, by acting as a *Fomentation*, upon the parts of the body contiguous to the Bath; for I have frequently obſerved that the ſuppleneſs and moiſture of the skin, that manifeſt a reſtored perſpiration, begin to be perceivable upon the legs and thighs of the patient, who has had recourſe to this expedient.

The *Semicupium* has the advantage over the *Pediluvium*, in many diſeaſes of the *Viſcera:* In *Cholic Pains*, and *ſpaſmodic Contractious* of the inteſtinal canals, and in violent conſtrictions of the tender membranous tubes, (ſuch as the *Ductus Cyſticus*, *Ureters* and *Urethra*) when they are blocked up and irritated by rough and angular concretions.

But the moſt effectual uſe of the warm Bath, is ſuppoſed to be that wherein the whole body is immerſed: Indeed, the warm Bath is ſo well underſtood in its Anodyne capacity, that every body (almoſt) after the fatigue of a journey, or other hard exerciſe, has recourſe to the Bagnio for refreſhment: and ſo agreeable is the operation of this medicine, that in ancient times, as well as in theſe days, it has been conſidered as a point of luxury and pleaſure; witneſs thoſe magnificent Baths of the *Romans*, deſcribed by *Pliny*, *Vitruvius*, and other eminent writers of antiquity: together with the conſtant practice

of many modern voluptuaries.---Nothing, ſurely, yields a more eaſy ſenſation than that which we feel in a Bath of pure, ſimple Water moderately warm: that expanſion of nervous *Fibrillæ* ſtretched to almoſt every point in the ſurface of the body, is, as it were, unbended into a pleaſing ſtate of relaxation; and a charming indolence or *Languor* ſteals upon the ſpirits.

The warm Bath conduces to the reſtoration of health, by rendring the rigid fibres more pliable and ſupple; by waſhing away thoſe unctuous and *acrid* impurities, which are apt to obſtruct the pores, corrode the nerves and diſorder the perſpiration; by enlarging the openings of the cuticular ſtrainer, and inviting the fluids towards the ſurface; by reviving the natural heat, and cauſing an *Oſcillatory* motion, which will reſtore to parts that are cold, inſenſible and contracted, their former warmth, functions and flexibility: and in a languid circulation, proceeding from a *Viſcidity* of the juices, the warm Bath will be ſerviceable by encreaſing the velocity of the blood, which is agitated and attenuated by the rarefaction of the heat within, and the preſſure of the Water without the veſſels.

From theſe effects of the warm Bath, it muſt be ſalutary in *paralytic Diſorders*, *contracted Sinews*, *ſpaſmodic Affections* of the *Nerves*, *hypochondriacal* and *hyſterical Caſes*, Obſtructions of the *Menſes*, *Hæmorrhoids* and *Perſpiration*; the Scurvy, venereal Diſtemper, and all diſeaſes, the

the cauſes of which are to be diſcharged through the *Emunctories* of the skin; accordingly there is often an amazing quantity of foul humours, expelled into the *Bath* from this outlet. In the *German* Miſcellanies, we read of a woman afflicted with a pain in her loins, who after having tried other remedies in vain, found nothing gave her ſo much relief as warm Bathing, upon the uſe of which, a groſs, *unctuous* matter was found floating upon the water, and might have been taken off with a ſpoon. There is likewiſe another hiſtory of an *hypochondriacal* man, who upon uſing the warm *Bath*, found alſo ſuch a ſcum, which grew every day more and more *corroſive*, and ſmelled ſo fœtid, that they were obliged to infuſe freſh herbs to correct the noiſome ſtench, as well as the *Acrimony* of the water, which even affected the hand of the rubber; and this *Excretion* continued until the patient was quite recovered. Indeed, (as Dr. *Shaw* obſerves) ſuch an *unctuous* matter is obſervable in the *Baths* at Bagnios, after they have been uſed by perſons apparently in health.---Among the Ancients, this remedy was always applied to thoſe who were bit by a mad dog, even after they were ſeized with the *Hydrophobia*; and *Hoffman*, from the information of a phyſician of *Duderſtad*, gives an account of a mad wolf, that coming out of the woods, bit ſeveral perſons, who died of the bite; till at length, by the advice of an ordinary man, ſome others who had met with the ſame misfortune, had recourſe to the uſe of a moderately hot Bath; having firſt taken a doſe of *Theriaca Veneta*, and

the *Fungus* of the *Dog-Roſe*; and by theſe means repeated every day, were delivered from the terrible conſequences of the poiſon. It muſt be owned, however, that in theſe caſes, part of the credit of the cure, was due to the *Spongia Cynorrhodi*, which is a very powerful *Diuretick*, and of ſuch efficacy in a great many diſtempers, as to have obtained in *Sicily*, the epithet of *Sanatados* or *All-heal*.---And here it will not be unſeaſonable to obſerve the difference of practice among the ancients, as well as moderns, in treating patients bit by a mad dog, with regard to the article of Bathing.---*Celſus* ſays, that ſome practitioners of his time, ordered the patient immediately into the warm *Bath*, that he might ſweat plentifully, while his ſtrength was ſufficient to undergo that evacuation, and that the poiſon might have an opportunity to diſtil from the open wound; then he was regaled with a good quantity of Sheer wine, which they conſidered as an antidote to all poiſons; and by this method repeated for three days, he was ſuppoſed to be out of all danger: but *Celſus* himſelf orders the wound to be *cupped*, then *cauterized* or ſeared (if the part is not nervous or tendinous) and afterwards treated as a common *Burn*.---In the *Hydrophobia*, which he looks upon as a very dangerous ſymptom, he ſays, the only remedy is to plunge the patient unawares into a fiſh-pond, and duck him in it ſeveral times, ſo as that he ſhall be compelled to ſwallow a great quantity of the Water; by which his thirſt may be quenched, and his abhorrence of the fluid at the ſame time removed.--This practice of almoſt drowning

ing the patient, Dr. *Mead* obſerves, was revived in the beginning of the laſt century; and though he thinks ſuch ſeverity altogether unreaſonable, he preſcribes the cold *Bath* to be uſed for a conſiderable length of time, from the accident of the bite; and aſcribes its efficacy to the preſſure of the Water upon the ſurface of the body, and the conſtriction the cold makes upon the fibres of the skin and the ſmall tubes; whereby the diſtenſion of the veſſels by the fermenting humours is repreſſed; and a flux of urine promoted for ſo many days, that all danger of the nervous fever, the conſequent of the inſtilled poiſon, is quite over. He likewiſe, in this caſe, condemns the uſe of the Warm *Bath*, as productive of an inflammatory heat, which occaſions a dangerous diſtenſion of the veſſels. But how ſhall we reconcile this opinion with that of the accurate, the experienced *Hoffman*, who pronounces the uſe of the Cold Bath, precarious and uncertain, and recommends Warm Bathing as ſerviceable in bringing the ſubtile Venom to the ſurface of the body, where it finds a free exit? I believe both the one and the other may be ſucceſsfully uſed on this occaſion, under proper cautions and reſtrictions. Warm Bathing, in the beginning, will relax the fibres, widen the ſtrainer of the ſkin, quicken the circulation, and promote the ſecretions of urine and ſweat, by which the *Virus* may be diſcharged before it has had time to produce any dangerous diſtenſion of the veſſels; and even after the *Hydrophobia* hath begun to rage it may be ſerviceable in relaxing and removing that convulſive conſtriction of the nerves, which prevails in divers parts of

the body, and is the immediate cauſe of that direful ſymptom; while, at the ſame time, it may ſollicit a critical evacuation from the ſkin, or ſome other emunctory of the body, without diſtending the veſſels beyond a poſſibility of retrieving their tone. --- On the other hand, a ſudden immerſion into Cold water communicates a ſpring to the whole nervous ſyſtem, by which the ſolids are ſtrengthened, contracted, and ſtimulated, to propell the juices with additional force, the velocity of the blood is increaſed; conſequently all the ſecretions are augmented, and a glowing warmth being generated on the ſurface of the ſkin, is commonly followed by a profuſe ſweat: thus the veſſels are ſupported againſt the rarefaction ſuppoſed to be produced by the *Virus*, which may likewiſe be expelled among the promoted ſecretions of the body: but I am far from thinking it unneceſſary to harraſs and affright the patient in the Cold *Bath:* for, if the intention is to induce a ſtrong contraction in the ſolids, nothing more effectually accompliſhes that aim, than ſuch treatment as inſpires the paſſions of anger and fear. There is upon record, a famous inſtance of a lady of very high rank, who was cured of the *Palſy* by an affront and mortification purpoſely offered to her pride, whereby ſhe was ſeized with a fever of indignation. --- I have known a gentleman who was *paralytic* to a deplorable degree, enraged to a perfect uſe of all his limbs, while his anger predominated: I have ſeen perſons under the influence of a *Pannic*, exert their muſcles in an incredible manner; and in ſome parts of this iſland it hath been a common practice in the *Mania* and bite of

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the mad dog, to reinforce the power of the Cold *Bath*, by ſhutting up the patient alone, and properly ſecured, in a ſolitary church, where his fancy might be haunted all night long, with images of ſuperſtitious terror.

But, to return to Warm Bathing: the uſe of it is in nothing more ſucceſsful, than in *maniac* diſorders, whether of the melancholy or frantic ſpecies: both theſe are owing to a diſordered circulation in the brain, occaſioned by a thick foul viſcoſity in the juices, which, by a nervous conſtriction of the lower parts, are forcibly driven upwards, yielding an impure and interrupted ſecretion of the animal ſpirits, and diſturbing their containing veſſels, ſo as to create various *Chimæras* in the imagination. In this caſe, the Warm Bath is eminently ſerviceable, by *ſoftening, ſuppling, and relaxing the nervous parts, opening by its warmth and moiſture, the cold and hardened skin, and thus deriving the courſe of the blood upon the habit of the body, and giving it a free and general circulation.*

Hoffman, who is very full in the praiſes of this remedy, obſerves, that, in caſes of madneſs, he had preſcribed it with ſurpriſing ſucceſs, after *Bleeding*, *nitrous* and *diluting* medicines; and wonders, that a practice ſo much depended upon by the ancients, ſhould be almoſt entirely neglected by the phyſicians of theſe days. *Hippocrates, Galen, Celſus, and the methodiſts, held the uſe of Bathing in great eſteem for the cure of fevers, eſpecially of the intermitting kind; and this chiefly in the interval between*

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two fits, or when the fit is going off; or even in the beginning of an ardent fever. In this laſt circumſtance it is adminiſtred to this day by the *Negroes* in the Weſt-Indies, the *Bath* being medicated with emollient herbs, which enrich the Water with a mucilage that adds to its ſoftening and relaxing virtues. By theſe means a vent is often procured for the obſtructed perſpiration, before the heat occaſioned by its detention hath increaſed ſo as to produce a total putrefaction of the juices.

Beſides theſe uſes of the Warm Bath, it is of great ſervice in promoting delivery, by relaxing the parts in thoſe women who are turned of thirty before the firſt child; and in ſuch as are naturally contracted in conſequence of a rigid fibre, and robuſt conſtitution, which is the caſe with all thoſe healthy young women, of a florid complexion, who live in the country, and are uſed to hard exerciſe; inſomuch that a country practitioner told me, he found great difficulty in delivering his patients, until he had recourſe to the Warm *Bath,* for relaxing and rendering the parts more dilatable.

Having conſidered theſe effects of the Warm Bath, conſiſting of pure Water only, I am inclined to believe, that the Mineral Principles in Hot Springs, have often, in the cure of patients by Bathing, uſurped that praiſe and reputation which was really due to the ſimple element; and that the external uſe of common Water, properly warmed, would have the ſame, or nearly the ſame, effect in the gout,

gout, which an ingenious phyſician attributes to the *ſaponaceous* and *ſulphureous Particles* with which the Waters of *Bath* are impregnated. --- That a *Pediluvium* made of good ſoft Water warmed, is of ſervice in ſolliciting the gouty matter to the extremities, is an inconteſtible truth; and, doubtleſs, the operation of its heat upon the contained fluids, may produce ſuch a gentle fever as will be ſufficient to *grind* that matter ſmall enough to circulate thro' the finer paſſages, in order to be diſcharged by ſweat, urine, or ſtool. ---

Howſoever minute and volatile thoſe Mineral Particles may be, I very much queſtion, whether they will find eaſy admiſſion into the blood, by the ſmall *inhaling* veſſels of the skin, while they are confined in a ponderous fluid, that ſurrounds the ſurface of the body, and by a conſiderable preſſure, *quaquaverſum*, blocks up the very pores through which only they can enter; and ſuch obſtruction may be increaſed by the aſtringency which thoſe Minerals impart to the Waters of the Bath: ſo that, inſtead of opening, ſoftening, relaxing, and purifying, they will, (excluſive of their additional weight and preſſure, which are greater in theſe than in common Water,) be apt to contract the pores, criſp up the fibres, harden the ſurface of the skin, and leave upon it a ſort of mineral cruſt, which may corrode, and hurt, the tender, nervous papillæ, produce a diſagreeable itching and heat, and totally diſorder the perſpiration. As to the volatile parts in which the chief virtues reſide, they are continually flying off in a perpendicular direction; ſo that they

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can have little effect upon the body *immerſed*. --- This ſuppoſition is partly confirmed by experiment: for there are many hot ſulphureous Wells upon the continent, in which a piece of ſilver being *immerſed*, will receive no ſtain; whereas, when ſuſpended over the ſteam of the ſame Waters, it ſoon acquires a fine yellow colour. Mr. *Boyle*, in his hiſtory of air, ſays he found a certain metal more ſuddenly and evidently affected, by being ſuſtained in the air, over the fumes of a *menſtruum*, than it was when totally covered by the *menſtruum* itſelf: and it is commonly obſerved, that in a moiſt air, occaſioned by a plentiful evaporation, iron guns will contract ruſt in a ſhorter time, and much larger quantity, than if they were actually ſunk in ſea Water. --- Theſe obſervations, though they do not altogether diſprove the common notions of a Mineral Hot *Bath*, at leaſt invalidate its ſuppoſed effects; and plainly demonſtrate, that the ſubtile and volatile parts are more efficaciouſly communicated in *Vapour* or *Fomentation*, which is the method of uſing the Waters, which we now come to conſider.

The ancients uſed the *Vapour Bath* compoſed of natural Hot Steams, which, riſing from the earth, were received under a proper Arch, or Hot-houſe: but this was ſolely with a view to procure ſweat; for which purpoſe they alſo had recourſe to a dry heat, ſuch as Hot Sand, Horſe Dung, Stove Rooms, and artificial Bagnios; together with the method of *inſolation*, in which the patient was expoſed to the

the ſun-beams, that they might exhale the peccant humours in ſome chronical diſtempers.

Fomentation is ſo frequently uſed, and ſo well underſtood, in all external inflammations, that it would be ſuperfluous to deſcribe either the manner of applying *Stupes*, or the common diſorders in which they are beneficial. They have often ſtopt the progreſs of a *Gangrene*, diſcuſſed the *venereal Phimoſis*, and *Hernia humoralis*, and allayed the pain, and removed the tenſion of the *Eryſipelas*: the Vapour of hot Water, breathing through the pores of a bladder, hath aſſuaged the torture of the *pleuritic Stitch*, and even diſſolved its cauſe; and the *Angina* is often cured by the ſteam of this fluid, received into the mouth, through a *Funnel*, or the ſpout of a tea-kettle, under the cover of a blanket, which, by detaining the *Effluvia*, encourages a total *Diaphoreſis* of the head: nay, in *ſtrumous* ſwellings of the neck, *Van Swieten* obſerves, that all other *diſcutients* will be of little ſervice, unleſs the parts affected be frequently *fomented* with the vapour of hot Water; and he relates the caſe of a ſtiff joint from the *Induration* of the ligaments, which, in two months, perfectly recovered its motion and *Flexibility*, by being expoſed to the ſteam of hot Water, for an hour every day.

That this *Vapour* is a moſt powerful diſſolvent, is indiſputably proved from its effects in *Papin's Digeſtor*, which are ſo violent as, in a few minutes, to reduce the hardeſt bone into the conſiſtence of a jelly: nor is the effi-

cacy of this *Vapour* upon the human body, to be wondered at, when we conſider into what minute particles that fluid is diviſible, and what millions of *inhaling Veſſels* gape upon the ſurface of the skin: for, according to *Leeuwenhoeck*'s computation, upwards of one hundred thouſand of them may be covered with one grain of ſand.

The ſteam of hot Water therefore, not only relaxes the ſides of the obſtructed veſſels, ſo as to allow the humours to paſs, but, alſo acts as a *diluent*, after having inſinuated itſelf into the circulation: for, with reſpect to the *fluids* of the human body, nothing is ſo powerful in *diluting* and *attenuating*, as Water, which, in the language of the *Adepts*, being changed by the *Seminale Principium*, is the univerſal *Cement* of all things, and that, into which, by the efforts of nature and of art, all things may be reſolved: but, over and above theſe effects, the *Vapour*, in relaxing the veſſels, leſſens their reſiſtance, by which means, the circulating juices flow thither with increaſed *Momentum*, and ſweep before them all remains of the obſtructed matter; accordingly, we ſee the part begin to ſwell and redden, in the ſame manner as when cupping-glaſſes are applied, in order to make a *Revulſion*, by removing the preſſure of the *Atmoſphere*.

Although ſuch benefits are obtained from the *Vapour* of ſimple hot Water; we know how to reinforce its virtues, ſo as to render it much more efficacious; and readi-

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ly allow, that, in this form, the hot mineral Springs are applied to great advantage.

The ſteam of common Water is enriched by the infuſion of vegetables, as well as by the ſolution of ſalts: for all the fine, *aromatic* particles of vegetables are *volatile*, and continually flying off; conſequently adapted for entering the ſmalleſt order of veſſels, along with the *Vapours* in which they riſe; and this is eminently the caſe with all *acid* and *urinous* ſalts. --- The air is always impregnated with the finer parts, and native ſpirit of thoſe vegetables that grow upon the ſurface of the earth: thus, while we ſail along the coaſts of thoſe countries that abound with *aromatic* plants and trees, we are regaled with their *odoriferous exhalations*, even at a great diſtance from the ſhore. Mr. *Boyle*, from the report of an ingenious phyſician, informs us, that the *Dutch* having deſtroyed almoſt all the clove-trees that grew upon the iſland *Ternate*, with a view to enhance the value of their ſpice, ſuch a change in the temper of the air immediately enſued, as plainly proved, that the *aromatic Fragrance*, exhaled from the bloſſoms of thoſe trees, had corrected the natural unwholeſomneſs of the clime, for the whole iſland became very unhealthy; a circumſtance (as the phyſician imagined) owing to the *corroſive* ſteams of a *Vulcano*, the ill effects of which had been prevented by the ſpicy *Effluvia* of the trees. --- The *Volatility* of many ſalts is perfectly well known: that there are numberleſs *ſaline Corpuſcles* floating in the air, is proved by a thouſand different experiments: the *Vehicle*

of all theſe is Water; and many more which the ſun hath not power to raiſe, may be driven upwards by the hot ſteam of that fluid. --- The *attenuating* qualities of *ſal Ammoniacus* and *Sea Salt*, are remarkable in their effects upon the human body: by an exceſſive uſe of the laſt, the blood is ſometimes ſo diſſolved as to burſt from the veſſels in dangerous *Hæmorrhages*; and a ſolution of *Sal Ammoniacus* in Water, externally applied to a contuſion, will ſurprizingly diſſolve the *coagulated* blood.

Minerals are alſo *volatilized* by chemical operations. Dr. *Mead* ſays, he had once in his poſſeſſion, a ſpirit procured by a combination of ſalts with *metallic* bodies, ſo volatile that it would all fly away in the open air, without being heated, and ſo corroſive as to *erode* the glaſs ſtopple of the *Vial* in which it was contained --- What is effected by Art, is ſometimes performed by Nature, in the bowels of the earth. --- The effects of ſubterraneous fire are manifeſt in the eruptions of every *Vulcano*; in *Earthquakes*, *Hurricanes*, *Mineral Damps*, and *Exhalations*, termed by the ancients, *Mephites:* but, in nothing are they more conſpicuous, than in thoſe *Thermæ*, or hot Springs, which now claim my obſervation.

There is in the cold *chalybeate* Waters, for the moſt part, a ſpirit of ſurpriſing volatility, which is not eaſily retained when they are removed from the Spring head; and this, in ſome of them, is ſo intoxicating to the nerves, as to produce *Giddineſs* in the very inſtant of drinking.

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Though this very ſubtile ſpirit is, in part, diſſipated by the heat of the *Thermæ*, yet the *Vapour* of theſe hot Waters is certainly impregnated with *ſulphureous* particles, or a *volatile Vitriol of Iron*, which cannot fail to operate powerfully on the ſurface of the human body, and introduce themſelves within the laws of circulation, not only by the pores of the skin, but alſo by the *Saliva* and *Reſpiration*. The air contiguous to the bathing places at *Bath*, in *Somerſetſhire*, is ſurcharged with *Sulphur* to ſuch a degree, as to be very offenſive to tender lungs; and thoſe *Vertigos* and *Palpitations* with which ſome of the Bathers are ſeized, may be partly owing to the *Mineral Effluvia* operating upon the nervous membrane of the noſe, as well as to the heat and preſſure upon the parts that are immerſed.

By this time, you will have perceived the whole of my opinion, touching the external uſe of mineral Waters, whether *Acidulæ*, or *Thermæ:* that, in point of Bathing, they are not preferable, not even equal to pure ſimple element, except in thoſe caſes, where their *ſtyptic* or *aſtringent* quality may be of ſervice, namely in ſome particular kinds of ulcers, and *oedematous* ſwellings; and that, in general, the moſt effectual way of applying them externally is in form of *Vapour*, whether conveyed to one particular part, or extended to the whole ſurface of the skin: yet this method, ſo ſafe and ſalutary, approved by every phyſician of candour, learning, and experience, hath never been practiſed at *Bath*, which is the great hoſpital of the nation, frequented by almoſt all the valetudinarians whoſe lives are of any

conſequence to the commonwealth. This defect, together with the inconveniences and danger that attend thoſe who bathe in this place, muſt occur at once to a judicious obſerver: nevertheleſs, they have been overlooked with the moſt ſupercilious and willful neglect by the Corporation, which has even rejected the earneſt and repeated remonſtrances of thoſe who have tasked their ingenuity to contrive ſchemes for rendering their Waters more ſafe and ſerviceable. --- The ſame indolence, or indifference, prevails among the managers and directors of their hoſpital: for, although, in the plan which was handed about to ſollicit ſubſcriptions, they obſerved, that, by the execution of it, many pariſhes would be eaſed of the burthen of their poor cripples; that the knowledge and uſe of the Bath Waters would be greatly improved, to the benefit of all ſucceeding generations; and that the hoſpital would, in a few years, furniſh more hiſtories of caſes that might be depended upon, than could poſſibly occur in private practice, during a whole age; the public hath not, as yet, been favoured with the hiſtory of one cure performed under the auſpices of that charity. Dr. *Summers*, phyſician in that place, hath indeed, of late, publiſhed an accurate account of the ſucceſs of Warm Bathing in paralytic diſorders, and, from the books of the hoſpital, favoured us with a liſt of all the paralytic patients who have received benefit from the uſe of the Bath. So far the public is obliged to that gentleman: but, as he himſelf juſtly obſerves, the ſame public *hath a right to be informed how far their noble intentions have been anſwered*; *and what good their Bene-*

Benevolence has produced: and this information can only be conveyed in a ſuccinct detail of all the caſes in which the Warm Bath has proved ſerviceable or detrimental. Many people were induced to contribute largely, by theſe arguments which were equally ſolid and ſpecious: from the regularity of patients in an hoſpital, they hoped to ſee the uſes and virtues of the Waters aſcertained; and did not doubt that their ſucceſs upon ſuch as were reſtricted to the moſt exact regimen, under the immediate eye and direction of phyſicians, would encourage others to imitate the ſame regularity, and, of conſequence, bring a greater concourſe of people to *Bath.* --- A ſatisfaction of this kind, is what the public, in general, has reaſon to expect, and every ſubſcriber, in particular, a right to demand; and that the world hath been hitherto diſappointed on this ſcore, muſt be owing to a ſhameful lazineſs in thoſe who belong to the hoſpital, in a medical capacity; or to a reſerve in the directors, which is equally unaccountable and unjuſt, and very ill becomes the truſtees of a voluntary ſubſcription.

In the progreſs of my inquiries, touching the external uſe of the Bath Waters, I underſtood that the phyſicians and ſurgeons reſiding at that place, had preſented a memorial to the mayor, and corporation, deſiring they would petition the parliament, to enable them to make ſeveral alterations in the Baths, which are neceſſary for the good of the public. To this memorial they received an anſwer, importing that they would by no means apply to parliament, but, ſo far as their own power extended, do every

every thing for the advantage and improvement of the Baths; and they deſired that thoſe neceſſary alterations ſhould be ſpecified. Accordingly, the gentlemen of the faculty held another conſultation, at which Mr. *Cleland*, Surgeon, preſented a plan for that purpoſe, which was read, and referred to the report of a committee appointed to examine the particulars of it, with more attention. Deſirous of knowing the nature of theſe propoſed alterations, I addreſſed myſelf to that gentleman, whom I found to be of a very communicative diſpoſition; he not only favoured me with a copy of his plan, which, for the ſatisfaction of the public, ſhall (by his permiſſion) be printed as an appendix to this eſſay, but, alſo, communicated to me, the remarks he had made on the Baths, and a very ingenious apparatus he had contrived, for ſome complaints peculiar to the fair ſex, as well as for ſweating any particular part of the body, with the ſteam or vapour of thoſe Waters. This was a piece of ſatisfaction he had never refuſed to any perſon of the leaſt conſideration, whether a foreigner, or of our own country. The machinery, together with the former propoſals he had offered to the ſame intent, had been approved of by moſt of the learned men in *London* and *Bath*, and preſented to His late Royal Highneſs the Prince of *Wales*, by whoſe command they were ſent to Mr. *Naſh*, with a deſire that he would lay them before the corporation, in his name.---Yet, notwithſtanding ſuch powerful recommendation, the plan was never executed: on the contrary, a moſt rancorous ſpirit of oppoſition was raiſed againſt the author, whoſe reputation

tion with the public could not fail to excite the malevolence of ſome narrow-minded people of the profeſſion, who had acquired plentiful fortunes by their practice, without having made one improvement for the benefit of their own patients, or the advantage of mankind: no wonder, then, that they ſhould take umbrage at Mr. *Cleland*'s preſuming to contrive methods for making the Waters more ſafe and effectual, and endeavour to prevent the ſucceſs of his plan. The cruel treatment he underwent upon that occaſion, compelled him to appeal to the public, and the whole conteſt betwixt him and his adverſaries appeared in print; when he was allowed, by every unprejudiced perſon, to have greatly the advantage in the diſpute. At laſt, his enemies had recourſe to the pen of an author as notorious for the ſervile homage he yields to his patrons, as for the inſolence and ſcurrility with which he treats all the world beſides. True to theſe principles, this champion publiſhed an anonymous letter to Mr. *Cleland*, wherein, after a chain of falſe reaſoning, twanged off in all the arrogance of expreſſion, ſome aukward attempts to ironical humour, and the moſt abuſive low ſarcaſms, levelled at a lady of diſtinction, and, indeed, at a whole nation, on her account, he takes it for granted, that he has fully proved the truth of his unjuſt allegations. This author muſt have entertained a very contemptible idea of the underſtanding and judgment of the public, if he hoped to impoſe upon them by ſuch an effuſion of idle ſophiſtry, in the courſe of which, he is even driven to the ſubterfuge of making falſe quotations: but his talents, as a commen-

tator, are ſo well underſtood, and ſo juſtly celebrated, that he had nothing further to fear for his reputation on that ſcore.

That the reader may diſtinctly perceive the neceſſity of reforming thoſe Baths, I ſhall here enumerate the inconveniencies that attend the preſent method of uſing the Waters externally; the knowledge of which, I, in a great meaſure, owe to the information of Mr. *Cleland*.

Diſeaſed perſons of all ages, ſexes, and conditions, are promiſcuouſly admitted into an open Bath, which affords little or no ſhelter from the inclemencies of the weather, ſuch as wind, rain, hail, and ſnow: for, by the peculiar ſagacity of the learned in that place, the bathing time is limited to the moſt ſevere ſeaſon of the year. This being the caſe, it may be reaſonably ſuppoſed, that many of the fair ſex are withheld by modeſty from going into the Bath, where they muſt not only mingle with male patients, to whoſe perſons and complaints they are utter ſtrangers; but, likewiſe, be expoſed in a very mortifying point of view, to the eyes of all the company, in the Pump-room, as well as to thoſe of the footmen and common people, whoſe curioſity leads them to look over the walls of the Bath: ſome may be apprehenſive of being tainted with infectious diſtempers; or diſguſted with the nauſeating appearances of the filth, which, being waſhed from the bodies of the patients, is left ſticking to the ſides of the place.

Although

Although the king's and queen's Baths have been known to contain five-and-forty patients at one time, the number of guides does not exceed half a dozen of each ſex; ſo that if any of thoſe Bathers who are unattended ſhould be ſeized with a ſudden *Vertigo*, fit, or other accident, they might loſe their lives for want of proper aſſiſtance. But, granting no ſuch accident ſhould happen, ſome of them, on retiring from the Bath, muſt, from this defect in point of attendance, remain in the wet bathing dreſs, until their conſtitutions are greatly endangered. This inconvenience is rendered more grievous by the nature of that dreſs, which, being made of canvas, grows cold and clammy in a moment, and clings to the ſurface of the body with a moſt hazardous adheſion. If they ſhould eſcape the conſequences of both theſe riſques, they may ſtill be ſubject to another, in being obliged to wait in a cold ſlip for their reſpective chairs, which cannot always be brought to them in proper time, becauſe the paſſage is frequently blocked up. After all, they are carried to their lodgings, while their pores are open from the effects of the Bath, in paultry chairs made of ſlight croſs bars of wood, faſtened together with girth web, covered with bays, and, for the moſt part, deſtitute of lining: theſe machines, by ſtanding in the ſtreet till called for, are often rendered ſo damp by the weather, that the Bathers cannot uſe them without imminent hazard of their lives.

The ſlips, or places for undreſſing, are not only too few in number, but, alſo, cold, damp, uncomfortable, and altogether improper for the uſe to which they are put; and, laſtly, the fine volatile parts of the Mineral are ſuffered to evaporate, without being converted to any medical uſe.

From theſe conſiderations it plainly appears, that thoſe patients who are deprived of the uſe of their limbs, and incapable of helping themſelves, muſt be ſubject to great inconvenience and danger; and that, in all probability, many perſons of a delicate frame, and timorous diſpoſition, are altogether deterred from that way of uſing the Waters; for theſe evils are not frivolous, or chimerical: every day are heard complaints of the bad effects of Bathing; and if theſe are minutely inquired into, they will be found (for the moſt part) to proceed, not from the Water itſelf, but from the inconveniencies attending the manner of Bathing. I myſelf, who have had very little opportunity of ſeeing the immediate conſequences of the Bath, could produce ſeveral inſtances in which the patient's lungs were dangerouſly affected by Cold, caught either in the Bath, in dreſſing, or in waiting for a chair.

Mr. *Cleland*, urged by theſe conſiderations, formed an eaſy and rational plan for rendering the Baths more ſafe and commodious; and, as I have already obſerved, contrived an apparatus for confining the vapour, and directing it in full ſteam to any part of the body, as the exigency of

the caſe might require ; a method of application which is, of all others, undoubtedly, the moſt effectual, in the external uſe of medicated Waters. He invented a cloſe warm chair, for conveying the patients to and from the Bath, which hath ſince been imitated by the governors of the hoſpital, as well as by many of the chairmen who ply in the ſtreets; and he propoſed that a Bagnio ſhould be erected with proper conveniencies for Cupping, Sweating, Bathing, Pumping, and Fomentation, and ſupplied by a pipe from the kitchen or reſervoir of the king's Bath. Such an improvement would afford a ſafe, eaſy, and agreeable accommodation to any of the royal family, who may, (as heretofore) have occaſion for the Waters; as well as to the nobility and gentry, and thoſe who want to refreſh themſelves after the fatigue of a journey. People of remarkable delicacy, either in ſentiment, or conſtitution, might here receive the benefit of the Waters, in the moſt effectual manner, and avoid all the dangerous and diſagreeable circumſtances of bathing in the open air: for it would be an eaſy matter to temper the fluid to ſuch a degree of Warmth or Heat as might be neceſſary to the caſe of every particular patient; whereas, at preſent, all the Bathers are obliged to undergo the ſame degree of heat, tho' the various nature of their complaints, and conſtitutions, may require a very eſſential difference.

Though the intereſt of the corporation was evidently connected with the execution of this ſcheme, in order to leave them abſolutely without excuſe, Mr. *Cleland* offered to erect ſuch a Bagnio at his own expence, and pay yearly into

into the chamber of *Bath*, a reaſonable conſideration for the uſe of their Water; or, if they would be at the charge of building one according to his plan, to take a long leaſe of it, at a certain yearly rent; to diſcover all his contrivances for topical Fomentation; and to exert himſelf, to the beſt of his power, for the advantage of the place.

Theſe propoſals, diſintereſted, juſt, and reaſonable as they are, which contain the moſt plain, eaſy, and effectual remedies for thoſe evils and defects that are the continual ſubject of complaint, have been, hitherto, neglected by the very people who would reap the immediate advantage of the propoſed alterations; and Mr. *Cleland*, who muſt have been at a conſiderable expence of money, time, and application, in bringing his ſchemes and machinery to perfection, will, in all likelihood, ſee his deſigns for the public good ſtill defeated by the ſame mean, ſelfiſh, and malicious arts, which have thwarted him ſo long; unleſs they are overbalanced by the interpoſition of that authority which hath power to examine and remove every thing that appears an obſtruction to a national advantage.

Narrow minds will ever have narrow views. The corporation of *Bath* ſeems to have forgot that the eaſe and plenty they now enjoy, and to which their fathers were ſtrangers, are owing to their Waters; and that an improvement upon their Baths, would, by bringing a greater concourſe of company to their town, perpetuate theſe bleſſings to them and their poſterity. How little is to be

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expected from them, in this particular, might have been gueſſed by their conduct to Mr. *Wood*, the architect, to whoſe extraordinary genius they are indebted for a great part of the trade and beauty of the place: yet they have induſtriouſly oppoſed his beſt deſigns, which, had they been executed, would have rendered *Bath*, in point of elegant architecture, the admiration of the whole World. It is, therefore, to be hoped, there are ſtill ſome among us, whoſe exalted ſtation, ſuperior ſenſe, and public ſpirit, will be ſufficient to intereſt the legiſlature in an affair which is truly national, that the public may no longer ſuffer from the private claims, ſordid paſſions, or ſelfiſh views of any particular ſet of men. Thoſe ſalutary Springs are the gift of heaven, of ſuch conſequence to the health of individuals, as to claim the particular protection of the public; and *Bath*, under proper auſpices, would ſoon rival the *Baiæ* of the ancients; for it might eaſily be brought to excell as much in beauty and convenience, as in the ſalubrious efficacy of its Waters. In an age like this, when ſuch ſums are expended by private perſons, upon works of magnificence and decoration; when ſuch conſiderable aids are granted for the utility and encouragement of commerce; and our adminiſtration ſeems ſo well diſpoſed to conſult, and promote, the wellfare of the commonwealth; we have reaſon to believe, that ſome attention will be paid to thoſe fountains flowing with health, which, at a very moderate expence, might be ſo improved as to become the greateſt boaſt, ornament, and bleſſing of theſe kingdoms. --- But, if our expectations from the legiſlature

giſlature ſhould be diſappointed, and the Corporation of *Bath* ſtill turn a deaf ear to the propoſals which have been made; the proprietors of other Baths, either in this, or in any other country, will probably take the hints which they have rejected, and then they may chance to ſee their Springs deſerted, and their town utterly impoveriſhed and ruined. This is far from being a vain apprehenſion; in as much as ſome ingenious phyſicians from *Portugal* have obtained models of Mr *Cleland*'s apparatus, and copies of his plan, with a view to carry it into execution at the *Caldas* near *Lisbon*; and I make no doubt that the people of *Aix la Chapelle*, and the proprietors of the famous Hot Wells in *Bohemia*, and other parts of *Germany*, will ſeize the firſt opportunity of improving thoſe Waters, from which they derive ſuch advantage, in the concourſe of ſtrangers which they draw together.

Indeed, Mr. *Cleland* ſeems to have waved all conſiderations of private emolument, in conſenting that his own name ſhould not appear in the plan, but that it ſhould be offered as the joint opinion of all the phyſicians and ſurgeons of *Bath:* but, in all probability, they are determined to reject every thing that is known to come from his quarter, how much ſoever it may tend to their own honour, or the good of their fellow-creatures; for I am informed by a particular friend who lately came from that place, that ſince his laſt ſcheme was preſented, the phyſicians have come to a reſolution to exclude all ſurgeons from their conſultations on this ſubject. This muſt be an

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arrow directly levelled at him, (as it does not appear that any other of his profeſſion has propoſed any thing worthy of public notice) and juſtifies the old obſervation, that an injured perſon will never be forgiven by thoſe who have done him wrong. Nay, ſo induſtrious are his adverſaries in the proſecution of their enmity, that all methods, even the loweſt arts, are practiſed to prepoſſeſs the minds of ſtrangers againſt him, by a moſt malicious miſrepreſentation of his character; though, to thoſe who will give themſelves the trouble of inquiring into the truth of facts, he will (I am confident) appear to be a man of good morals, and uncommon ability.

REGULATIONS *propoſed to the Mayor and Corporation of* BATH.

I. THAT the king and queen's Bath be uſed three days a week for ladies, and three days for men, alternately.

II. That the Croſs, and Hot Bath, be uſed three days for ladies, and three days for men, alternately, differing from thoſe in the king and queen's Bath.

III. That no holidays be allowed as to bathing, except *Sundays*.

IV. That all female guides ſhall aſſiſt in either Baths, thoſe days on which the ladies bathe; and the men guides do the ſame, thoſe days on which the men bathe.

V. That a table of fees be eſtabliſhed by the Mayor and Corporation, to direct ſtrangers in paying the ſerjeants, guides, clothwomen, pumpers, &c.

VI. That no ſerjeant, guide, clothwoman, pumper, &c. ſhall preſume to take, or demand, from any ſtranger, or other perſons, more than is ſpecified in the ſaid table of fees, under ſuch penalty as the Mayor ſhall think fit.

VII.

VII. That a convenient number of cloſe chairs be appointed to attend every morning at the Baths, that all ſtrangers may know where to ſend for them; and that the chairmen, ſo attending, be under the direction of the ſerjeants; the next chair to ſucceed, as at the Rooms, which will prevent many complaints, and remedy a real grievance.

VIII. As it has been cuſtomary for ſtrangers and others, to give gratuities, over and above their ſtated fees, to the ſerjeants, guides, clothwomen, pumpers, &c. let it be ordered for the future, that all moneys be paid into a proper perſon's hands, at the appointment of the Mayor, or to the maſter of the pump-room for the time being; and that a regiſter be kept of all ſuch perſons names, and ſums of money, paid to the ſaid perſon ſo appointed; and twice a year, or at the end of each ſeaſon, this money ſhall be divided in ſuch proportion, to all the ſerjeants, guides, men and women, clothwomen, and pumpers, &c. as the Mayor ſhall direct.

IX. It is propoſed to have two chairs, conſtantly to attend at the Mayor's door, or where he ſhall pleaſe to appoint them, every night, from twelve o'clock 'till day-light, for the conveniency of all ſtrangers, phyſicians, ſurgeons, men-midwives, apothecaries, and others; that the chairmen ſhall take their turns, and in conſideration of their attendance, all perſons uſing theſe chairs, ſhall pay double fare from and after twelve o'clock, till day-light, or what the Mayor ſhall direct.

X.

X. Whereas, frequently, and almoſt daily, complaints have been made by many indiſpoſed people, who are obliged to keep their beds, and are deprived of reſt by the continual noiſe of ringing and tolling of bells, it is to be hoped, when this is repreſented to the Mayor and Corporation, that they, together with the Rector of *Bath*, will think of ſome ſhorter method to give the proper notices, that the weak, and ſick in bed, may not be diſturbed.

XI. As no Bath Water is to be had after eleven at night, the Pumps being all locked up at that hour, it is propoſed, that for the future, the common Pump near the king's Bath, and that belonging to the Hot Bath, ſhall be left open till one o'clock in the morning, for the conveniency of all ſtrangers, and others, who are ordered to drink, and bathe, before they go to bed; that the cocks of the different Pumps ſhall be ſet ſo high, as that a pail may be filled under each; and that a direction ſhall be ſtuck up in the pump-room, giving notice where the pumper may be found, for the benefit of thoſe who want Water in the night.

The

following PROPOSALS *were preſented by Mr.* Cleland, *at a Meeting of the Phyſicians and Surgeons, aſſembled, to conſider of the improvements neceſſary to be made in the Hot Baths.*

WE, the phyſicians, and ſurgeons, of *Bath*, beg leave to repreſent to the Mayor and Corporation, that great advantages will ſe to the public, and to the city of *Bath* in particular, by having king and queen's Bath altered, and made more convenient, and a dactory erected, with ſundry more improvements for the good of all ch as ſhall come here for the benefit of the *Bath* Waters.

Firſt, it is propoſed to have a houſe fitted up as near the king's Bath poſſible, for all topical applications, and other conveniencies; the wer rooms of which are to conſiſt of a well-formed Hot Room in the iddle, to be always kept in order with proper fires, &c. alſo with a mp from the reſervoir in the king's Bath, to ſupply it, at all times, ith Hot Water, where any perſons that require it may be cupp'd, and ated; on each ſide of this Hot Room, to have a bathing room; ne for gentlemen, and the other for ladies, to communicate with ors into the Hot Room. In each of theſe bathing rooms muſt be ced three ciſterns, with curtains round each; one of theſe ciſterns bathe in, either ſitting, or ſtanding; the other two for bathing, lyg, or half lying. In each of theſe ciſterns muſt be placed three cks, one from the reſervoir in the king's Bath, to ſupply the ſame th Hot Water to bathe in, as alſo to pump upon any part affected: e pumps to be work'd on the outſide of the bathing rooms. The nd cock ſerves to convey the ſteam, or vapour, of the Bath Waters a vapour Bath confined in a boiler, to be ſupplied from the reir by means of a Pump, which muſt deliver only into this boiler, which there is no outlets, but through the tubes, with valves, or cocks, to regulate the natural or artificial heat of the Waters and our, conveyed by them into theſe ciſterns. The third cock into e ciſterns, is from a Cold Bath kept always ready for thoſe that are ered Cold Bathing, in a ciſtern made for that purpoſe, and will ſerve to lower the natural and artificial heat of the Waters immediatehen wanted. To each of theſe private ciſterns, or Baths, there ſt be bed-rooms, and antichambers, with fire-places, for the acmodation of thoſe who ſweat, bathe, and uſe the vapour Bath, cup,

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or bleed, that the patients may ſtay to repoſe themſelves, and until it ſhall be proper for them to be carried to their lodgings.

The alterations propoſed to be made in the king and queen's are theſe:

Firſt, to ſtop up the nitches, and take away the rails; the wall of the king's Bath ſhould be raiſed ſo high, as to ſcreen the ple in the Bath, from thoſe without it; that the eaſt, weſt, and walls ſhould be rebuilt in the ſame form; that a portico ſhould ſcribed round this ciſtern, for ſhelter to the Bathers; that the Bath ſhould be removed ſo far to the eaſtward, as to anſwer middle of the king's Bath; that four ſlips ſhould be made int ciſtern, with dreſſing-rooms, and antichambers to them; th pumps ſhould be fixt in the dreſſing-rooms, for the uſe of ſhould be pump'd without going into the Bath; that four pumps ſhould be fixt in the king's Bath, out of the draught of of wind that could happen from the buildings, for the uſe of ſhould be pump'd in the Bath; and that a paved walk ſhould b round both Baths, upon one level, for the benefit of poor cripp make uſe of the Waters.

It is hoped, that, when this alteration is undertaken, the ſam will be thought neceſſary for amending the ſlips into the king's as is propoſed in the queen's.

Theſe laſt alterations, which, together with the ſudatory, an apparatus, will make the Baths compleatly uſeful; or, if it ſhoul pen that all theſe Pumps ſhould be made uſe of at the ſame tim cording to this plan, there will be, notwithſtanding what is ma of at the pump-room, &c. ſtill a ſufficient quantity of Water to all theſe good purpoſes beſides; ſeeing the king's Bath contain tuns, and 50 gallons, and fills in 9 hours and 40 minutes.

As to the alterations required to be made in the croſs and hot they are but ſmall, though a regulation in Bathing is much w with reſpect to the ſerjeants, guides, chairmen, and clothwome conſideration of which is humbly ſubmitted to the Mayor and ration, and a method for that purpoſe ſhall be made appear to at their deſire.

The expence of theſe laſt alterations, Mr. *Wood* computed thouſand pounds, and they, together with the Bagnio, and all its ratus, will render the uſe of the Baths much more ſafe and e than it is at preſent, until the other more magnificent ſcheme ingenious architect ſhall be carried into execution.

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